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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,920	03/30/2004	Hongyong Zhang	07977-103003	3167

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EXAMINER	
QI, ZHI QIANG	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/811,920	ZHANG, HONGYONG	
	Examiner	Art Unit	
	Mike Qi	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-33 and 41-50* is/are pending in the application.

4a) Of the above claim(s) *34-40 and 51-72* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-33 and 41-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 08/768,066.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/19/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 24-33 and 41-50 in the reply filed on October 19, 2004 is acknowledged.

2. Claims 34-40 and 51-72 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claims, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on October 19, 2004.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. The new claims 24-33 and 41-50 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 24, 29, 41 and 46, recitation ". . .said conductive layer continuously extends along said edge for a length longer than a pitch of said second lines (should be the second conductive lines such as data signal lines)." and ". . . said conductive layer continuously extends along said edge for a length longer than a pitch of adjacent ones of said scanning lines." that cannot be found any description in the specification and corresponding drawings, and that would be new matters to this application (the original disclosure is the application 08/768,066, and the new claims 24-33 and 41-50 were added to this divisional application).

For examination purpose, the limitations as claimed in claims 24-33 and 41-50 such as "the conductive layer continuously extends along the edge for a length longer than a pitch of the second lines (should be second conductive lines such as data signal lines)" and "the conductive layer continuously extends along the edge for a length longer than a pitch of adjacent ones of the scanning lines" were not given any patentable weight.

Claims 25-28 are dependent on the claim 24; claims 30-33 are dependent on the claim 29; claims 42-45 are dependent on the claim 41; claims 47-50 are dependent on the claim 46. Therefore, all the dependent claims have the deficiency set forth above.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 24, 27, 29, 32, 41,44, 46 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art (AAPA) in view of US 5,619,358 (Tanaka et al).

Claims 24, 29, 41 and 46, AAPA (paragraphs 0004 – 0014; Fig. 17) that a display device comprising:

- first substrate (element substrate 11) having side edges;
- first conductive lines (scanning lines 16) over the first substrate (11) in a first direction (X direction);
- second conductive lines (signal lines 15) over the first substrate (11) in a second direction (Y direction);
- using interlayer insulating film for separating the scanning line and the signal line, i.e., an interlayer insulating film disposed between the first conductive lines and the second conductive lines;
- using TFT to control the liquid crystal display that is connected to the signal line and scanning line, and that is disposed at location adjacent to intersection of the first conductive lines and the second conductive lines;
- the liquid crystal material is interposed between the two substrates, so that the second substrate located separated from the first substrate (11);
- sealing member (17) disposed at a periphery of the first and second substrates, and the sealing member (17) having a portion adjacent to the side edge;

(concerning claims 41 and 46)

- driver circuit (signal line drive circuit 13 and scanning line drive circuit 14 that must have thin film transistors) formed over the fist substrate (11) and disposed within a region surrounded by the sealing member (17).

AAPA does not explicitly disclose that a conductive layer comprising a same material as the second lines (should be second conductive lines such as data signal lines) or a same material as the scanning lines, and interposed between the portion of the sealing member and the first substrate.

However, Tanaka discloses (col.9, line 46 – col.12, line 51; Figs. 1 and 8) that using dummy electrodes (27a,27b) comprising conductive films (25, 26) interposed between the portion of the sealing member (29) and the substrate (21); and using dummy electrodes (38a, 38b) comprising conductive films (36,37) interposed between the portion of the sealing member (39) and the substrate (32). Tanaka also discloses (col.11, lines 18 – 35; Fig. 1) that the conductive film (25) connected to the signal electrode (23) (the signal electrode must be connected to the signal line) or scanning electrode (24) (the scanning electrode must be connected to the scanning line), and conductive film (26) is not connected to the signal electrodes or scanning electrodes; and the conductive film (26) is formed at same layer as the conductive film (25) (see Fig.1). Therefore, the same layer using same material would simplify the manufacturing process. Therefore, the conductive film comprising a same material as the data signal lines or the scanning lines would simplify the manufacturing process. Tanaka also indicates (col. 4, lines 58 – 60) that each substrate member includes dummy electrode

(conductive layer) on the liquid crystal side (between the substrate and the sealing member) to keep the thickness of the liquid crystal layer uniform.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to use conductive film formed between the substrate and the sealing member and use same material as the signal lines or scanning lines as claimed in claims 24, 29, 41 and 46 for simplifying the manufacturing process and keeping the thickness of the liquid crystal layer uniform.

Claims 27, 32, 44 and 49, lacking limitation is such that the conductive layer is electrically isolated from the first conductive lines (such as the scanning lines) or the second conductive lines (such as data signal lines).

However, Tanaka discloses (col.11, lines 29-35; Fig.1) that the conductive film (26) is not connected electrically to the signal electrodes (23) (the signal electrodes must be connected to the signal lines) and the scanning electrodes (24) (the scanning electrodes must be connected to the scanning lines), so as to prevent the corrosion invading into the electrodes.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to design the conductive layer that is electrically isolated from the scanning lines or the data signal lines as claimed in claims 27, 32, 44 and 49 for preventing the corrosion of the electrodes.

8. Claims 25, 30, 42 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA and Tanaka as applied to claims 24, 27, 29, 32, 41,44, 46 and 49 above, and further in view of US 5,429,962 (Yang).

Claims 25, 30, 42 and 47, lacking limitation is such that the thin film transistor is a top-gate type thin film transistor.

However, Yang indicates (col.1, lines 36 – 38) that the top-gate type TFT is a conventional switching element structure. Yang indicates (col.4, lines 33 – 36) that the top-gate type liquid crystal display shows advantages such as the reduction of contact resistance and facile control of the contact resistance.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to use top-gate type thin film transistor in the display device as claimed in claims 25, 30, 42 and 47 for the advantages such as the reduction of contact resistance and facile control of the contact resistance, and that is conventional switching element structure.

9. Claims 26, 31, 43 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA and Tanaka as applied to claims 24, 27, 29, 32, 41,44, 46 and 49 above, and further in view of US 5,508,532 (Teramoto).

Claims 26, 31, 43 and 48, lacking limitation is such that each channel region of each of the thin film transistors has a crystalline structure.

However, Teramoto discloses (col.1, lines 21-23) that it is desirable to utilize a crystalline silicon film as an active layer of the TFT so as to obtain excellent operating characteristics.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to design the channel region of the TFTs having a crystalline

structure as claimed in claims 26, 31, 43 and 46 for obtaining a excellent operating characteristics.

10. Claims 28, 33, 45 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA and Tanaka as applied to claims 24, 27, 29, 32, 41,44, 46 and 49 above, and further in view of US 5,162,901 (Shimada et al).

Claims 28, 33, 45 and 50, lacking limitation is such that the conductive layer extends in a form of a rectangular wave.

However, Shimada discloses (col.9, lines 25 – 54; Fig.7) that the conductive film extending form such as the added capacitance electrode wire (2) (conductive layer) having a rectangular wave shape for the extending, and such extending form would increase the contact area to the other layer such as the wire (6) with no breaks. Therefore, such extending form used in the conductive layer of this application would be an obvious variation for increasing the contact area and the layers contact stress, and more easier to keep the cell gap uniform.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to extend the conductive layer in a form of a rectangular wave as claimed in claims 28, 33, 45 and 50 for increasing the contact area and layers contact stress, and more easier to keep the cell gap uniform.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1) AAPA also discloses (paragraph 0008) that the TFT using the crystalline silicon enables operation which is remarkably higher than that of an amorphous silicon.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299. The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Qi

Mike Qi
Patent Examiner
Art Unit 2871